

ABSTRACT

A film surface imprinted with nanometer-sized particles to produce micro- and/or nano-structured electron and hole collecting interfaces, including: at least one substrate; at least one photoabsorbing conjugated polymer (including polybutylthiophene (pbT)) applied on a substrate,
5 nanometer-sized particles including multiwalled carbon nanotubes (MWNT) to produce a charge separation interface; at least one transparent polymerizable layer, wherein the MWNT are embedded in the conjugated polymer to produce mixture and applied on a substrate to form a MWNT bearing surface film layer to form a stamp surface which is imprinted into the surface of the polymerizable film layer to produce micro- and/or nano-structured electron and hole collecting
10 interfaces; polymerizing the polymerizable film layer to form a conformal gap between the MWNT stamp surface and the surface of the polymerizable film layer, and filling the gap with a photoabsorbing material to promote the generation of photoexcited electrons and transport to the charge separation interface.